



RESPONSE UNDER 37 CFR §1.116
EXPEDITED PROCEDURE
EXAMINING GROUP 1712

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

CARNAHAN et al.

Group Art Unit: 2856

Application No.: 09/665,767

Examiner: Michael Cygan

Filed: September 20, 2000

For: METHOD AND APPARATUS FOR RAPID DETERMINATION OF
POLYMER MOLECULAR WEIGHT

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION UNDER
37 C.F.R. §1.116

Assistant Commissioner for Patents
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Sir:

Claims 1, 4 to 8, 10 to 21, 23 to 29, 31, 34 to 36 and 38 to 43 are pending. The November 22, 2002 Final Rejection rejected claims 1, 4 to 8, 10, 11, 18, 19, 21, 23, 24, 26 to 29, 31 and 34 to 36 under 35 U.S.C. §103(a) over Miroslav and Allcock and rejected claims 12 to 17, 20, 25 and 38 to 43 under 35 U.S.C. §103(a) over Miroslav, Allcock and Nielsen et al. Reconsideration is respectfully requested for the following reasons:

The invention relates to a method for speedy determination of the molecular weight of a polymer reaction product of a diphenyl carbonate and a dihydric phenol. The specification points out that the reaction product of this reaction is a complex mixture of:

“reactants (e.g., monomers), catalysts, pH buffers, and non-polymeric products, in addition to oligomeric and polymeric products of polymerization. When the polymer comprises an aromatic polycarbonate, the reaction mixture may comprise, for example, the reactants diphenyl

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carbonate and bisphenol A, the product phenol, and a catalyst, in addition to polycarbonate oligomers and polymers.

Specification page 6, lines 5 to 11.

Additionally, the specification points out:

Alternatively, the molar mass determination may be conducted off-line after the concentration determination by diverting the high molecular weight fraction to a molar mass detector that has a cell capable of containing and effecting rapid mixing of the entire HMWF that is separable from the main flow of pumped solvent. The off-line embodiment permits *more accurate determination of the average molecular weight and simplifies the calculation of average molecular weight*. This is then equivalent to determination with zero dispersion or separation of the polymer but permits elimination of interfering low molecular weight substances. This configuration is shown in Figure 2. (Emphasis added.)

Specification page 10, lines 22 to 29 states:

Claim 1 claims a method for determination of polymer molecular weight comprising a step of “determining off-line... molecular mass... on a diverted high molecular weight fraction” and claim 31 claims a system for the determination of polymer average molecular weight comprising an “off-line” molar mass detector.

Miroslav, Allcock and Nielsen et al. do not teach or suggest “off-line” molar mass detection. The October 21 Office Action argues that with respect to claims 22 and 33 (“off-line” claims now cancelled in favor of independent amended claims 1 and 31) that “the examiner takes Official Notice of the equivalence of offline and online techniques in the analysis art....” Applicants traversed this assertion. MPEP 2144.03 provides that “[i]f the applicant traverses such an assertion [Official Notice] the examiner should cite a reference in support of his or her position.”

The PTO argues that the traverse to the “Official Notice” was not timely. The Patent Office made this assertion in its November 14, 2001 Office Action but the rejections of that Office Action were based on references that were overcome by Applicants’ February 8, 2002 Declaration establishing invention prior to the effective

date of the references. In July 2002, the PTO provided a copy of a provisional application teaching that established an earlier priority date for the November 14, 2001 references. The PTO iterated its assertion for the first time thereafter, only in its October 21, 2002 Office Action. To that date, the assertion was not an issue. To that date, the only issue was whether Applicants' Declaration established invention prior to the references. The October 21 Office Action was the first time the assertion was effectively raised as an issue. The Applicants timely traversed the assertion in its Supplemental Amendment filed the same date as the PTO's next October 21 Office Action.

While the Final Rejection argues that the traversal of "Official Notice" was untimely, the Final Rejection also cites Drukier allegedly in support of "off-line" obviousness. But Drukier teaches a combined HPLC separation and detection off-line to a main effluent producing procedure. This is opposite the claimed off-line molar mass detection of a fraction from an on-line chromatographic column. See "system comprising on line a chromatographic column and a sequential concentration detector, and an off-line molar mass detector" (claim 1).

"Off-line" molar mass detection that "permits more accurate determination of the average molecular weight and simplifies the calculation of average molecular weight" would not have been obvious in view of the Miroslav, Allcock and Nielsen et al. references on-line detection that does not improve accuracy or simplify the determination of average molecular weight. Molar mass detection "off-line" to a separation would not have been obvious in view of the Drukier teaching of an on-line or off-line separation. Claims 1 and 32 should be allowed. Claims 4 to 11, 18 to 27 depend from claim 1 and claims 34 to 36 depend from claim 31. The rejections of claims 4 to 11, 18 to 27, 31 and 34 to 36 should be withdrawn.

Additionally, claim 28 claims a step of effecting a minimally dispersive separation to yield a high molecular weight fraction "comprising polycarbonate oligomers and polymers comprising at least two bisphenol A units...." The specification page 8, lines 8 to 29 states:

A minimally dispersive separation is one that rapidly but substantially separates a high molecular weight fraction (HMWF) from a low molecular weight fraction (LMWF). The high molecular weight fraction is defined herein as comprising all oligomeric and polymeric products having at least two monomer units of at least one monomer. For example, the high molecular weight fraction of a sample comprising polycarbonate would comprise polycarbonate oligomers and polymers comprising at least two bisphenol A units.... In order to enable the fastest possible analysis time, it is preferred that the minimally dispersive separation create the least possible dispersion of the HMWF while maintaining its separation from the LMWF.

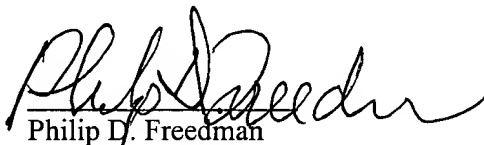
Miroslav, Allcock and Drukier et al. do not teach or suggest a “minimally dispersive separation... to yield a high molecular weight fraction... comprising polycarbonate oligomers and polymers comprising at least two bisphenol A units.”

The Final Rejection argues that the claimed “minimally dispersive separation” is taught at column 21, line 62 through column 22, line 2 (of Miroslav). This is incorrect. The Miroslav separation results in a “polymer component(s)” fraction. Claim 28 and its dependent claims are limited to a separation that yields “*oligomers and polymers*” (emphasis added). Otherwise, the separation is not “minimally dispersive.” A minimally dispersive separation that enables the “fastest possible analysis” would not have been obvious in view of the Miroslav and Allcock. references non-minimally dispersive separation that does not provide the “fastest possible analysis.” Claim 29 depends from claim 28. The rejection of claims 28 and 29 should be withdrawn.

In view of the foregoing remarks, reconsideration and allowance of claims 1, 4 to 8, 10 to 21, 23 to 29, 31, 34 to 36 and 38 to 43 are respectfully requested.

Should the Examiner believe that any further action is necessary in order to place this application in condition for allowance, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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